Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A method for obtaining values for optical constants n and k for a layer on a substrate comprising:

(a) providing a substrate with an organic or inorganic layer formed thereon;

(b) performing a spectral ellipsometer measurement and a broadband spectrometer measurement of said organic or inorganic layer in an integrated optical measurement system;

(c) independent of said performing, determining a thickness for said organic or inorganic layer using an independent optical thickness measurement component based on Beam Profile Reflectometry or Beam Profile Ellipsometry;

(d) determining said values for said optical constants n and k for said organic or inorganic layer based on said thickness, the spectral ellipsometer measurement, the broadband spectrometer measurement, and modeling information, wherein n represents index of refraction and k represents extraction coefficient; and

(e) displaying an experimental data output for said thickness data of said organic or inorganic layer combined with measurement data from said spectral ellipsometer and broadband spectrometer measurements, wherein said experimental data output is fitted to modeling data to provide a best fit of experimental data to modeling data.

2. (Original) The method of claim 1 wherein said organic or inorganic layer has a thickness in the range of about 300 to 10000 Angstroms.

3. (Cancelled)

4. (Cancelled)

PAGE 6/12 * RCVD AT 6/26/2007 3:33:11 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/3 * DNIS:2732885 * CSID:6197442201 * DURATION (mm-ss):03-00

5. (Previously presented) The method of claim 1 wherein the integrated optical measurement systems is an Opti-Probe series measurement system from Therma-Wave or a system with equivalent capability.

6. (Previously presented) The method of claim 1 wherein the independent optical thickness measurement component provides experimental data in the form of beam profiles that are matched to modeling data in a processor to arrive at a best fit of experimental data to modeling data.

7. (Original) The method of claim 1 wherein step (d) involves a Critical Point model otherwise known as a harmonic oscillator approximation.

8. (Cancelled)

9. (Cancelled)

10. (Previously presented) The method of claim 1 wherein said best fit of experimental data to modeling data provides said values for said optical constants n and k for said organic or inorganic layer.

11. (Previously presented) The method of claim 1 wherein said organic or inorganic layer is a 248 nm photoresist, a 193 nm photoresist, or an anti-reflective layer.

12. (Currently Amended) A method for obtaining n and k values for corresponding optical constants n and k for a top layer in a bilayer film stack on a substrate comprising:

(a) providing a substrate having a stack of layers comprised of a top photoresist layer and a bottom layer formed thereon;

(b) performing a spectral ellipsometer measurement and a broadband spectrometer measurement of said top photoresist layer in an integrated optical measurement system;

(c) inputting an input thickness value and input n and k values for said bottom layer into a program used to calculate said n and k values;

(d) independent of said performing, determining a thickness for said top photoresist layer using an independent optical thickness measurement component based on Beam Profile Reflectometry or Beam Profile Ellipsometry;

(e) independent of said performing, determining said n and k values for said top photoresist layer based on data that includes the thickness of said top photoresist layer, the spectral ellipsometer measurement, the broadband spectrometer measurement, and modeling information, wherein n represents index of refraction and k represents extraction coefficient; and

[[(e)]] (f) displaying an experimental data output for said ~~the~~ thickness of the top photoresist layer combined with measurement data from said spectral ellipsometer and broadband spectrometer measurements, wherein said experimental data output is fitted to modeling data to provide a best fit of experimental data to modeling data.

13. (Original) The method of claim **12** wherein said top photoresist layer has a thickness in the range of about 1000 to 10000 Angstroms.

14. (Previously Presented) The method of claim **12** wherein the thickness as well as the input n and k values of said bottom layer were determined prior to forming said top photoresist layer by a process comprising:

(1) forming said bottom layer on said substrate;

(2) performing a spectral ellipsometer measurement and a broadband spectrometer measurement of said bottom layer in an integrated optical measurement system;

(3) determining a thickness for said bottom layer; and

(4) determining said input n and k values for said bottom layer based on the thickness of the bottom layer, spectral ellipsometer measurement of the bottom layer, broadband spectrometer measurement of the bottom layer, and modeling information.

15. (Previously presented) The method of claim **14** wherein the independent optical thickness measurement component is used to determine the thickness bottom layer.

16. (Previously presented) The method of claim 14 wherein the independent optical thickness measurement component is based on Beam Profile Reflectometry or Beam Profile Ellipsometry.

17. (Previously presented) The method of claim 14 wherein the integrated optical measurement system is an Opti-Probe series measurement system for Therma-Wave or a system with equivalent capability.

18. (Original) The method of claim 12 wherein step (e) involves a Critical Point model otherwise known as a harmonic oscillator approximation.

19. (Cancelled)

20. (Cancelled)

21. (Previously presented) The method of claim 12 wherein said best fit of experimental data to modeling data provides said values for said optical constants n and k for said top photoresist layer.

22. (Previously presented) The method of claim 12 wherein said top photoresist layer is 248 nm photoresist or a 193 nm photoresist and the bottom layer is an organic or inorganic anti-reflective layer.

23. (Currently Amended). A method for obtaining n and k values for corresponding optical constants n and k for a top layer in a trilayer film stack on a substrate comprising:

(a) providing a substrate having a stack of layers comprised of a bottom inorganic layer, a middle organic anti-reflective coating layer, and a top photoresist layer formed thereon;

(b) performing a spectral ellipsometer measurement and a broadband spectrometer measurement of said top photoresist layer in an integrated optical measurement system;

(c) inputting a thickness and input n and k values for said bottom inorganic layer and said middle anti-reflective coating layer into a program used to calculate said n and k values;

(d) independent of said performing, determining a thickness for said top photoresist layer using an independent optical thickness measurement component based on Beam Profile Reflectometry or Beam Profile Ellipsometry;

(e) determining said n and k values for said top photoresist layer based on data that includes the thickness of said top photoresist layer, the spectral ellipsometer measurement, the broadband spectrometer measurement, and modeling information, wherein n represents index of refraction and k represents extraction coefficient; and

[[(e)]] (f) displaying an experimental data output for said ~~the~~ thickness of the top photoresist layer combined with measurement data from said spectral ellipsometer and broadband spectrometer measurements, wherein said experimental data output is fitted to modeling data to provide a best fit of experimental data to modeling data.

24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

27. (Previously Presented) The method of claim **23** wherein said best fit of experimental data to modeling data provides said n and k values for said top photoresist layer.

28. (Original) The method of claim **23** wherein said top photoresist layer is a 248 nm or 193 nm photoresist and the bottom inorganic layer is comprised of silicon nitride or silicon oxynitride.